



19970321 074

ISSN 1044-8187

Copies available from  
Publications Unit  
U.S. Fish and Wildlife Service  
18th and C Streets, N.W.  
Arlington Square Building  
Mail Stop 1111, Room 130  
Washington, DC 20240



Department of the Interior  
U.S. Fish and Wildlife Service



FISH HEALTH BULLETIN 7

# AEROMONAS HYDROPHILA INFECTIONS OF FISHES

Rocco C. Cipriano

and

G. L. Bullock

*U.S. Fish and Wildlife Service  
National Fisheries Research Center—Laetovun  
National Fish Health Research Laboratory  
Box 700*

*Kearneysville, West Virginia 25430*

APPROVED FOR PUBLIC RELEASE  
DISTRIBUTION STATEMENT 1

1990

## INTRODUCTION

*Aeromonas hydrophila* is a common motile bacterium of freshwater streams and ponds that frequently causes internal, generalized infections in fish—particularly cultured species. The infections commonly occur when fish are stressed by crowding, low oxygen, or a buildup of waste products in the water. Cultured warmwater fishes such as channel catfish, baitfishes, and minnows are particularly susceptible. Most *A. hydrophila* disease outbreaks occur in summer, when water temperatures are about 87–89° F (31° C). The terms red sore disease and red rot disease have been applied to *A. hydrophila* infections.

## CLINICAL SIGNS

*Aeromonas hydrophila* causes both acute and chronic infection. The severity of the disease is influenced by a number of interrelated factors, including the kind and degree of stress exerted on a population of fish, and the resistance of the fish.

The acute form rapidly becomes a fatal internal infection. Externally, it is accompanied by protrusion of the eyes and reddening of the skin (Fig. 1). The liver may become pale or green and the kidneys swollen, seemingly in reaction to bacterial toxins. Tiny pinpoint hemorrhages sometimes occur throughout the body wall and organs. The intestine and lower vent are often swollen, inflamed, and hemorrhagic; additionally, the intestine is devoid of food and filled with a yellow mucus-like material.



Fig. 1. *Aeromonas* infection in American shad, showing dark inflamed area (arrow).

## DTIC QUALITY INSPECTED 3



Fig. 2. *Aeromonas* infection in channel catfish showing eroded skin and muscle (arrow).

In the chronic disease, the predominant clinical signs are dermal ulceration, with hemorrhage and inflammation; the dermis and epidermis are eroded and the underlying musculature is destroyed (Fig. 2).

## DIAGNOSIS

A presumptive diagnosis of *A. hydrophila* may be based on the species of fish affected, the past disease status of the fish, and the presence of clinical signs of disease; however, a definitive diagnosis requires that bacteria be isolated and several diagnostic biochemical tests be applied.

## TRANSMISSION

Because *A. hydrophila* occurs naturally in water, fish are constantly exposed and infection occurs when they are under stress. Once an outbreak develops, fish-to-fish transmission is the major means of spreading the disease. There is no evidence of transmission of the bacteria from parent to offspring.

## HOST AND GEOGRAPHIC RANGE

Virtually all freshwater fish are susceptible to *A. hydrophila*; natural fish kills occur annually, usually in spring when fish are weak from overwintering; significant losses also occur in several species of cultured pondfishes in summer. Although the geographic range of *A. hydrophila* is worldwide, the disease is concentrated in areas where pondfishes are intensively cultured.

## CONTROL

The prevention of *A. hydrophila* infections is difficult because the bacterium and the fish are closely and constantly associated. Effective fish culture practices reduce stress and can help prevent disease outbreaks.

When outbreaks occur, they can be treated with Terramycin incorporated in feed. The antibacterial is fed at the rate of 3.5 g per 100 pounds of fish per day for 10 days.

## SUGGESTED READING

Cipriano, R. C., G. L. Bullock, and S. W. Pyle. 1984. *Aeromonas hydrophila* and motile Aeromonad septicemias of fish. U.S. Fish and Wildlife Service, Fish Disease Leaflet 68. 23 pp.

Detailed description of *Aeromonas hydrophila*, including etiology and disease, clinical signs, transmission, occurrence, incubation period, hosts and geographic range, control, and treatment.

**NOTE:** A fish disease specialist should be consulted for diagnostic assistance whenever a disease is suspected and before chemical treatments are used.

The use of chemicals or drugs on fish intended for human or animal consumption must be in accordance with current laws and regulations.

Use of trade names does not imply U.S. Government endorsement of commercial products.